Commonwealth of Kentucky
Division for Air Quality

REVISE PERMIT STATEMENT OF BASIS

Title V / Synthetic Minor, Operating
Permit: V-07-022 (Revision 2)
Progress Rail Services Corporation
Mayfield, KY 42066
February 6, 2009
Frough Sherwani, Reviewer

SOURCE ID:	21-083-00052
SOURCE A.I. #:	96472
ACTIVITY ID:	APE20080002

MINOR PERMIT REVISION - V-07-022 R2:

The Division received an application on October 8, 2008, for updating opacity permit condition for the Abrasive Blasting Emission Unit 05 (B1), as installed vents inside the building.

Therefore, requirement for opacity for Regulations 401 KAR 59:010 Section 3(1)(a) has been updated.

U.S. EPA REVIEW:

The U.S. EPA was notified of the issuance of the proposed permit revision on December 19, 2008 via e-mail. The comment period expired 45 days from the date of the e-mail. No comments were received during this period. The permit is now being issued final.

V-07-022 (REVISION 1):
The Division received an application for the addition of emission units at the facility on October 3, 2007. A paint booth for coating of engine interior blocks will be added to the facility. Three washers previously identified as insignificant activities will use cleaning and metal protection materials containing VOC and HAP and will now be designated as emission units in Section B of the permit. The application also specified changes to the material usage rate of locomotive coating and updated dimensions of the paint booth P1 and the abrasive blasting booth, B1. The Division has reviewed the aforementioned changes and determined that they qualify to be processed as a minor permit revision pursuant to 401 KAR 52:020, Section 14.

Paint booth P1 (EU1) dimensions will be approximately 23'L x 29'4"W x 12'8" H. The booth will have two banks of filters that are 4' x 10'. Paint will be applied with a manual airless applicator.

Paint booth P3 (EU3) dimensions will be approximately 24' L x 16' W x 12' H. The booth will have two banks of filters that are 4' x 8'. Paint will be applied with a manual airless applicator.

The abrasive blasting booth (EU5) dimensions will be 120' L x 30' W x 20' H. The booth will have a cartridge filter with 31,000 Ft^2 of filter area.

Three aqueous-based cabinet-style spray washers for cleaning of metal parts are now designated as EU6, EU7 & EU8. Cleaning solution capacity of each washer is 1,300 gallons. Emissions originate from cleaning solution use.

An off permit change request was approved by the Division on October 24, 2007. The permit has been updated to reflect that the 4.19 MM BTU/hr washer heater will operate on natural gas, but may also operate on diesel fuel as a back up.

V-07-022 (ISSUANCE DATE: SEPTEMBER 6, 2007)
SOURCE DESCRIPTION:
An application was received on April 23, 2007 for a Progress Rail Services Corporation facility to be located in Mayfield Kentucky. The facility will be located at a former Ingersoll Rand location. The Progress Rail Services facility will refurbish diesel locomotives. Emissions will originate from surface coating preparation, surface coating, engine testing operations and various insignificant activities.

Emission Unit 01 is a paint booth that will be used to paint locomotive engines. The paint booth dimensions are anticipated to be 23' L x 29' 4" W x 26' H. Paint will be applied using a manual air spray gun. Emissions will originate from paint and clean-up solvent use and will exhaust from a single stack through the roof. Particulate matter emissions will be controlled by two (2) banks of filters. The filter area of each bank will be 40 square feet.

Emission Unit 02 is a paint booth that will be used to paint locomotives. The paint booth dimensions are anticipated to be 115' L x 24' 6" W x 26' H. Paint will be applied using a manual air spray gun. Emissions will originate from paint and clean-up solvent use and will exhaust from two stacks through the roof. Particulate matter emissions will be controlled by two (2) banks of filters. The filter area of each bank will be 40 square feet.

Emission Unit 03 is a dynamometer used for testing diesel locomotive engines. Combustion emissions from the testing will exhaust through a single stack through the roof.

Emission Unit 04 is an abrasive blasting operation used to prepare locomotives for painting.

Insignificant activities will be as follows: (1) 10,000 gallon diesel storage tank, (1) 4,000 gallon engine oil storage tank, (1) 4,000 gallon used engine oil storage tank, welding operations, an alkaline washing process equipped with a 4.19 MM Btu/hr natural gas fired heater, a fire water tank 1.25 MM Btu/hr natural gas fired boiler and various natural gas fired comfort heating units.

COMMENTS:
The emissions from the surface coating operations are calculated by material balance. The entire content of VOC and volatile HAP in coatings, thinners and solvents is assumed to be emitted. An overspray of 50 percent of solids is used for the air spray gun coating application in calculating particulate matter emissions. The filters are assumed to control 95 percent of particulate emissions. The opacity and mass standards of 401 KAR 59:010 apply to the surface coating operations. The surface coating lines are subject to 401 KAR 59:225 due to being part of a major source. The coatings as applied will contain less than 3.5 lb/gal of VOC and will therefore be exempt from the VOC control standard. Should the permittee elect to thin coatings in the future, those coatings as applied must meet the exemption criteria or else the permittee will be required to comply with the VOC control standard specified in 401 KAR 59:225, Section 3. A compliance demonstration method for determining the VOC content of a coating as applied (when thinners are used) is included in the permit. The compliance demonstration method is based on calculation methods described in EPA-450/2-78-015, Control of Volatile Organic Emissions from Existing Stationary Sources – Volume VI: Surface Coating of Miscellaneous Metal Parts and Products, Appendix A, Sample Calculations of Control Options.

COMMENTS (CONTINUED):
The emissions of CO, NO_X, PM and VOC from the dynamometer are calculated using emission factors from EPA420-F-97-051, Emission Factors for Locomotives (December, 1997). Sulfur dioxide (SO_2) emissions are calculated using emission factor data from Sierra Research, Report No. SR-2004-06-01, Revised Inventory Guidance for Locomotive Emissions (June, 2004), prepared for Southeastern States Air Resources Managers, Inc. The dynamometer will have potential NO_X emissions of more than 100 tons per year. 401 KAR 50:012, General Application will apply to the dynamometer. The permittee will be required to develop and implement a work practice plan to minimize emissions from the dynamometer within 180 days of the issuance of the permit. 40 CFR 60, Subpart IIII, "Standards of Performance for Stationary Compression Ignition Internal Combustion Engines" and 40 CFR 63, Subpart ZZZZ, "National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines" does not apply to this operation because locomotive engines are not stationary engines.

The emissions from the abrasive blasting operation are calculated using an emission factor from AP-42, Chapter 13, Section 13.2.6, Abrasive Blasting, Table 13.2.6-1. The particulate matter emission factor used is for abrasive blasting of unspecified metal parts, controlled with a fabric filter and is 0.69 lb PM/1000 lb of abrasive. The maximum application rate of abrasive is 800 lb/hr. The abrasive blasting operation is controlled with a cartridge filter unit with 254 square feet of filter area and a pulse jet cleaning method. The filter material is a cellulose substrate with a nylon membrane surface treatment. The assumed particulate matter control efficiency achieved by the cartridge filter unit is 98 percent. The uncontrolled emission factor is calculated as follows:

0.69 lb/(1-0.98) = 34.5 lb; therefore the uncontrolled emission factor is 34.5 lb PM /1000 lb abrasive. The uncontrolled PTE is:

(800 lb abrasive/hr) x (34.5 lb PM/1000 lb abrasive) x (8760 hr/yr) x (1 ton/2000 lb) = 120.9 tons/yr.

The opacity and mass standards of 401 KAR 59:010 apply to this unit as well as 40 CFR 64, Compliance Assurance Monitoring.

Emissions from the alkaline washing process heater, the fire water tank boiler and the comfort heating units are calculated using emission factors from AP-42, Chapter 1, Section 1.4, Natural Gas Combustion, Tables 1.4-1 and 1.4-2. Emissions from welding are calculated using emission factors from AP-42, Chapter 12, Electric Arc Welding, Section 12.19, Tables 12.19-1 and 12.19-2.

EMISSION AND OPERATING CAPS DESCRIPTION:
The surface coating lines will be required to use coatings that contain less than 3.5 lb/gal of VOC as applied in order to be exempt from the VOC control standard specified in 401 KAR 59:225, Section 3. The paint booth filters shall be in place and operating efficiently at any time coatings are being applied. The facility will be subject to source wide limits of 9 tons and 22.5 tons per consecutive 12-month period for individual and combined HAP emissions. The facility will be subject to a source wide limit of 245 tons per consecutive 12-month period for NO_X emissions. Compliance with these emission caps will preclude applicability of 40 CFR 63.3880 to 63.3981 (Subpart MMMM), "National Emission Standards for Hazardous Air Pollutants for Surface Coating of Miscellaneous Metal Parts and Products", incorporated by reference in 401 KAR 63:002 and 401 KAR 51:017, Prevention of Significant Deterioration.

PERIODIC MONITORING:

Emission Unit(s)	Applicable Regulation/Requirement	Monitoring Requirements
01 (Engine Paint Booth) 02 (Locomotive Paint Booth)	401 KAR 59:010 401 KAR 59:225 Source-wide HAP limits	(a)Weekly documentation of qualitative visual observations at each paint booth stack. Corrective action shall be initiated if visible emissions are seen. (b) Visual inspection of paint booth filters weekly, documenting solids buildup and pressure drop across the filters. (c) The VOC content of coatings as applied shall be monitored and recorded daily. (d) Monitor and maintain the necessary records to determine the monthly and 12-month rolling total individual and combined HAP emissions.
03 (Dynamometer)	Source-wide NO_X limit 401 KAR 50:012	(a) Monitor and maintain the necessary records to determine the weekly, monthly and 12-month rolling total NO_X emissions. (b) Monitor and record the parameters established in the work practice plan.
04 (Abrasive Blasting)	401 KAR 59:010	(a) Weekly monitoring visible emissions from the filter unit stack using Method 22-like procedures; (b) If visible emissions are seen, (not included condensed water vapor within the plume) then an inspection shall be initiated of control equipment and corrective action taken. If visible emissions are present after the corrective action, the opacity shall be determined by reference Method 9. (c) Daily monitoring of filter unit pressure drop.

OPERATIONAL FLEXIBILITY:

The permittee may use any paint system with VOC less than 3.5 lb/gal. The VOC content of a paint system is as-applied including thinners and solvents added. The paint system and clean-up solvent must not violate the 12-month rolling total HAP emissions limits.

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations.